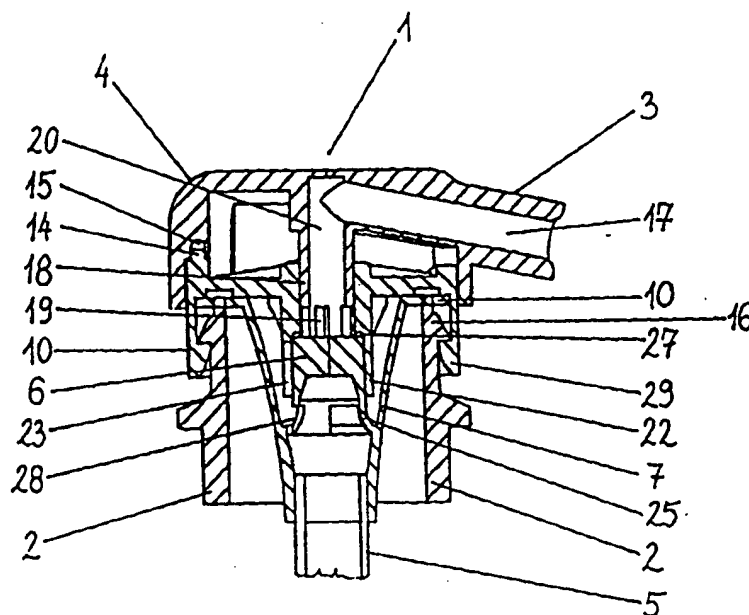




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

<p>(51) International Patent Classification 6 : <b>B65D 83/14, B67D 1/04</b></p>	<p><b>A1</b></p>	<p>(11) International Publication Number: <b>WO 99/44915</b></p> <p>(43) International Publication Date: 10 September 1999 (10.09.99)</p>
<p>(21) International Application Number: <b>PCT/HU/99/00014</b></p> <p>(22) International Filing Date: <b>2 March 1999 (02.03.99)</b></p> <p>(30) Priority Data: <b>U 98 00064 3 March 1998 (03.03.98) HU</b></p> <p>(71)(72) Applicant and Inventor: <b>RIGÓ, Mihály [HU/HU]; Török köz 3, H-1238 Budapest (HU).</b></p>		<p>(81) Designated States: AL (Utility model), AM (Utility model), AT (Utility model), AU, AZ, BA, BB, BG (Utility model), BR (Utility model), BY (Utility model), CA, CH, CN (Utility model), CU, CZ (Utility model), DE (Utility model), DK (Utility model), EE (Utility model), ES (Utility model), FI (Utility model), GB, GD, GE (Utility model), GH (Utility model), GM, HR, HU (Utility model), ID, IL, IN, IS, JP (Utility model), KE (Utility model), KG (Utility model), KP, KR (Utility model), KZ (Utility model), LC, LK, LR, LS (Utility model), LT, LU, LV, MD (Utility model), MG, MK, MN, MW, MX (Utility model), NO, NZ, PL (Utility model), PT (Utility model), RO, RU (Utility model), SD, SE, SG, SI, SK (Utility model), SL, TJ, TM, TR (Utility model), TT, UA (Utility model), UG, US, UZ (Utility model), VN (Utility model), YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p>Published With international search report.</p>

(54) Title: SIPHON FOR BOTTLES WITH CARBONATED BEVERAGES



## (57) Abstract

The invention is related to a siphon for bottles with carbonated beverages. The actuator has to be unlocked by twisting it before it can be pushed down in order to dispense the beverage. The siphon consists of a basic body (10) which is fitted to the mouth (8) of the bottle (2) and an actuator (4). Furthermore it has a valve part (7) and a closing part (7) connected to said valve part (7) by a flexible tongue (25) which is foreseen with fluid transfer openings (28). The housing (22) of the closing part is formed within the basic body (10).



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## SIPHON FOR BOTTLES WITH CARBONATED BEVERAGES

The invention relates to a closing device for measuring out bottled drinks, which enables drinks distributed in bottles, mainly plastic bottles, to be retailed in a simple way and ensures the safe and leakproof closing of the bottles when not in use.

- 5 In the case of some of the different drinks and soft drinks distributed in plastic bottles, first of all in the case of carbonated drinks, e.g.: soda water, mineral water, the retailing of the drink is ensured by the pressure head placed on the bottle. While simplifying the retailing, the pressure head also ensures the safe opening and closing of the bottle and in a given
- 10 case, makes it possible to fill in the drink. Several different solutions are known with respect to the design and practical implementation of such heads.

- Patent description No. HU 663 describes a closing-measuring equipment for the above purpose, to be used for bottles. The equipment described is
- 15 provided with a discharge pipe, a diving pipe protruding into the bottle and a valve placed between them. The valve structure consists of the inside of the bottle cap fitting on the opening of the bottle and the sealing body joining it. In the top of the bottle cap there is a hole for a press

button or a tap, and through this hole the axis of the press button or the tap is connected to the sealing body. The discharge pipe is connected to the side of the bottle cap and its internal end is connected to the diving pipe through a connecting hole, when the valve structure is in an open position.

The solution, although it is suitable for filling drinks from bottles, has numerous disadvantages. Its closing is not safe, because the closing is only done by stressing against the flange. The stressing force needed for the closing is provided by the flexibility of the rubber used as the material of the sealing body, so in the case of inappropriate material flexibility or temperature variation the closing force is not appropriate, and the liquid in the bottle leaks, in a given case the whole contents of the bottle are let out. The sealing bodies are easily damaged, so they do not ensure appropriate closing. The opening force is different, the point of opening cannot be determined when pressing, in some cases it is different even in the case of the same bottle. In practice the opening and operation of the valve structure, due to the position of the opening structure on the top of the bottle cap, is different from the usual practice and difficult. In the course of filling it is not easy to hold the bottle. Consequently the described equipment does not fulfil the requirements of filling devices completely.

When developing the solution according to the invention, the aim was to construct a closing device which can be opened and closed easily and safely, the closing of which is also ensured by the pressure within the bottle, the manufacturing of which is simple, which is easy to operate and  
5 can be used in the usual way.

In the course of developing the solution according to the invention, it was realised that if a solution is used for the closing of the head in the case of which the closing is done along a closing route, and the force deriving from the bottle's pressure is also used as closing force, then the set aim  
10 can be reached.

So the invention relates to a closing device for measuring out bottled drinks, which makes the simple filling of drinks distributed in bottles, mainly plastic bottles, possible as well as the safe and leakproof closing of the bottle when not in use. The closing device consists of a basic body  
15 fitting to the opening of the bottle and a pressure head, and it contains a valve block and a closing block connected to the valve block with a flexible part, and in the flexible part there are transfer holes, the closing block is placed in the closing block case formed in the basic body, and on the side of the said closing block case there are control gaps.

In a preferred exemplary embodiment of the closing device according to the invention a stop ring is placed on the pressure surface of the closing block. On the basic body there are external locking pins connected to rolling tracks, and the internal locking block in the pressure head includes  
5 locking holes to accommodate the said locking pins.

In a further exemplary embodiment, there is an internal locking flange at the bottom of the pressure head, and on the side of the basic body there are external locking lugs connected to it for the purpose of holding the pressure head. The locking device is connected to the opening of the  
10 bottle with a locking flange or with a screwed joint. The material of the basic body and the pressure head is made of some thermoplastic material, for example polypropylene or polyethylene.

Below the solution according to the invention is described with the help of the enclosed figures:

15 Figure 1 shows the plan view of the locking device according to the invention.

Figure 2 shows the top view of the locking device according to the invention.

Figure 3 shows the parts of the locking device in a so-called "exploded" view.

Figure 4 shows the internal construction of the pressure head.

Figure 5 shows the internal construction of the basic body.

5 Figure 6 shows the section of the valve block.

Figure 7 shows the top view of the valve block.

Figure 8 shows the sectional view of the locking device according to the invention in its closed position.

Figure 9 shows the sectional view of the locking device according to the  
10 invention in its open position.

Figure 1 shows the plan view of the 1 locking device. The 1 locking device consists of two main parts, the 10 basic body connected to the 8 opening of the 2 bottle, and the 4 pressure head situated on it, provided with the 3 discharge pipe. On the 8 opening of the 2 bottle, underneath  
15 the 10 basic body, the 7 valve block is arranged, and a 5 diving pipe protruding inside the 2 bottle is connected to it.

Figure 2 shows the top view of the 1 closing device according to the invention. On the 4 pressure head and the 3 discharge pipe the A section is marked, with the help of which the operation of the 1 closing device is  
20 introduced in figures 8 and 9.



In figure 3 the parts of the 1 closing device are shown in a so-called "exploded" view. The upper part of the 1 closing device is formed by the 4 pressure head provided with the 3 discharge pipe, and it is situated above the 10 basic body. On the side of the 10 basic body there are 11 external locking lugs for the purpose of fixing the 4 pressure head, while its upper part holds the 14 locking pins situated on the top point of the 13 rolling tracks. These are for the purpose of fixing the 4 pressure head in the closed position. Underneath the 10 basic body there is a 7 valve block, the 9 flange of which fits onto the 8 opening of the 2 bottle. In the case of this construction the 10 basic body is connected to the 2 bottle at the 16 conical external locking flange.

Figure 4 shows the bottom view of the internal construction of the 4 pressure head. Inside, the 4 pressure head is provided with the 12 internal locking flange which, clicked onto the 11 external locking lugs of the 10 basic body, is for the purpose of holding the 4 pressure body so as to enable the 4 pressure head to be turned away. Inside the 4 pressure head there are also the 21 locking blocks provided with 15 internal locking holes, and they are for the purpose of receiving the 14 external locking pins situated on the 10 basic body. These are responsible for the positioning of the 4 pressure head in closed position, when it is turned.

Inside the 4 pressure head there is a 18 pressure tap provided with the 19 transfer gaps, and inside it there is the 20 discharge hole. The said discharge hole is connected to the 17 filling hole situated inside the 3 discharge pipe.

- 5 In figure 5 the internal construction of the 10 basic body is shown. There is the 22 closing block case provided with 23 control gaps and inside the 22 closing block case there is the 24 closing flange. Inside the 10 basic body the 29 internal locking flange is formed, connected to the 16 conical external locking flange of the 2 bottle.
- 10 Figure 6 shows the sectional view of the 7 valve block. Inside the 7 valve block, the 6 closing block is arranged on the 25 flexible parts, with the 27 stop ring formed preferably on the 26 pressure surface of the said 6 closing block. Between the 25 flexible parts there are the 28 transfer holes.
- 15 In figure 7 the top view of the 7 valve block is shown. The figure shows well the 28 transfer holes arranged preferably between the three 25 flexible parts. Around the 7 valve block there is a circular 9 flange fitting on the 8 opening of the 2 bottle. In the middle, the circular symmetrical 6

closing block is arranged, on which the 27 stop ring is formed around the 26 pressure surface.

Figure 8 shows the sectional view of the 1 closing device according to the invention, in closed position. Here the 10 basic body, the 4 pressure head  
5 and the 7 valve block are seen adjusted to each other and assembled together. The 10 basic body is connected to the 16 external locking flange of the 2 bottle with the 29 internal locking flange. The figure also shows the 5 diving pipe connected to the bottom of the 7 valve block, protruding in the 2 bottle. The 6 closing block of the 7 valve block is situated in the  
10 22 closing block case arranged in the 10 basic body.

In the basic position of the 4 bottle head, the internal pressure drives the liquid in the 2 bottle, soda water in the given case, around the 6 closing block through the 28 transfer holes of the 7 valve block. However, in this position, the 6 closing block is pressed against the 24 closing flange of  
15 the 10 basic body, which prevents the liquid from being discharged. The closing is done by the complete pressure of the liquid inside the 2 bottle, because from the bottom it presses the 27 stop ring of the 6 closing block against the 24 closing flange formed in the 10 basic body. Thus the closing force, which needs to be overcome when opening the 2 bottle, is

the product of the 26 pressure surface and the internal pressure inside the 2 bottle.

Figure 9 shows the sectional view of the 1 closing device according to the invention in open position. The 1 closing device is opened by pressing the 4 pressure head. At this time the 18 pressure tap situated inside the 4 pressure head presses down the 6 closing block which, as a result, moves away from the 24 closing flange of the 10 basic body. At this point, in the first phase of the opening, the force to depress the pressure head shall overcome the internal pressure of the 2 bottle and the restoring force of the 25 flexible part of the 7 valve block. In the first phase of the pressing down, until the top of the 6 valve block reaches the 23 control gaps situated on the side of the 22 closing block case placed inside the 10 basic body, no liquid comes out yet from the 2 bottle. So when the 1 closing device is pressed down, it does not open immediately, only after it has pushed in to a given extent.

When the 26 pressure surface of the 6 closing block reaches the 23 control gaps formed in the side of the 22 closing block case, the liquid starts to flow. The liquid in the 2 bottle flows through the 28 transfer holes of the 7 valve block, flows around the 6 closing block and the 22 closing block case, and then it gets above the 6 closing block. From here,

through the 19 transfer gaps of the 18 pressure tap, it gets into the 20 discharge hole of the 4 pressure head, and from there it leaves the 4 pressure head through the 3 discharge pipe. The transfer surface of the 23 control gaps increases in proportion with the further pressing down, and  
5 so the opening takes place gradually. In this second phase of the opening process, the force acts only against the restoring force of the rubber, so it is not significant.

In the case of an exemplary embodiment of the solution according to the invention there are four 23 control gaps on the 22 closing block case, and  
10 there are also four 19 transfer gaps on the 18 pressure tap situated at the bottom of the 4 pressure head. The 7 valve block has got three 28 transfer holes. In the case of a further exemplary embodiment of the solution according to the invention the fixing onto the 2 bottle can be done with a clamp joint or screw joint.

15 The advantage of the solution according to the invention is that with its help safe closing and opening can be implemented. The internal pressure of the bottle also contributes to the closing, and at the same time the opening takes place gradually.

CLAIMS

1. Closing device for measuring bottled drinks, which makes the simple filling of drinks distributed in bottles, mainly plastic bottles, possible as well as the safe and leakproof closing of the bottle when not in use,

characterised by that,

5 the closing device (1) consists of a basic body (10) fitting to the opening (8) of the bottle (2) and a pressure head (4), and it contains a valve block (7) and a closing block (6) connected to said valve block (7) with a flexible part (25), and in the flexible part (25), transfer holes (28) are formed, the closing block (6) is placed in the closing block case (22)  
10 formed in the basic body (10), and on the side of the closing block case (22) there are control gaps (23).

2. Closing device as in claim 1, characterised by that a stop ring (27) is made on the pressure surface (26) of the closing block (6).

3. Closing device as in claim 1 or 2, characterised by that on the basic  
15 body (10) there are external locking pins (14) connected to rolling tracks

(13), and locking holes (15) are arranged in an internal locking block (21) in the pressure head (4) to receive the said external locking pins (14).

4. Closing device as in any of the claims 1 to 3, characterised by that there is an internal locking flange (12) at the bottom of the pressure head  
5 (4), and on the side of the basic body (10) there are external locking lugs (11) connected to it for the purpose of holding the pressure head (4).

5. Closing device as in any of the claims 1 to 4, characterised by that the locking device (1) is connected to the opening (8) of the bottle (2) with a locking flange or with a screw joint.

10 6. Closing device as in any of the claims 1 to 5, characterised by that the material of the basic body (10) and the pressure head (4) is made of some thermoplastic material, for example polypropylene or polyethylene.

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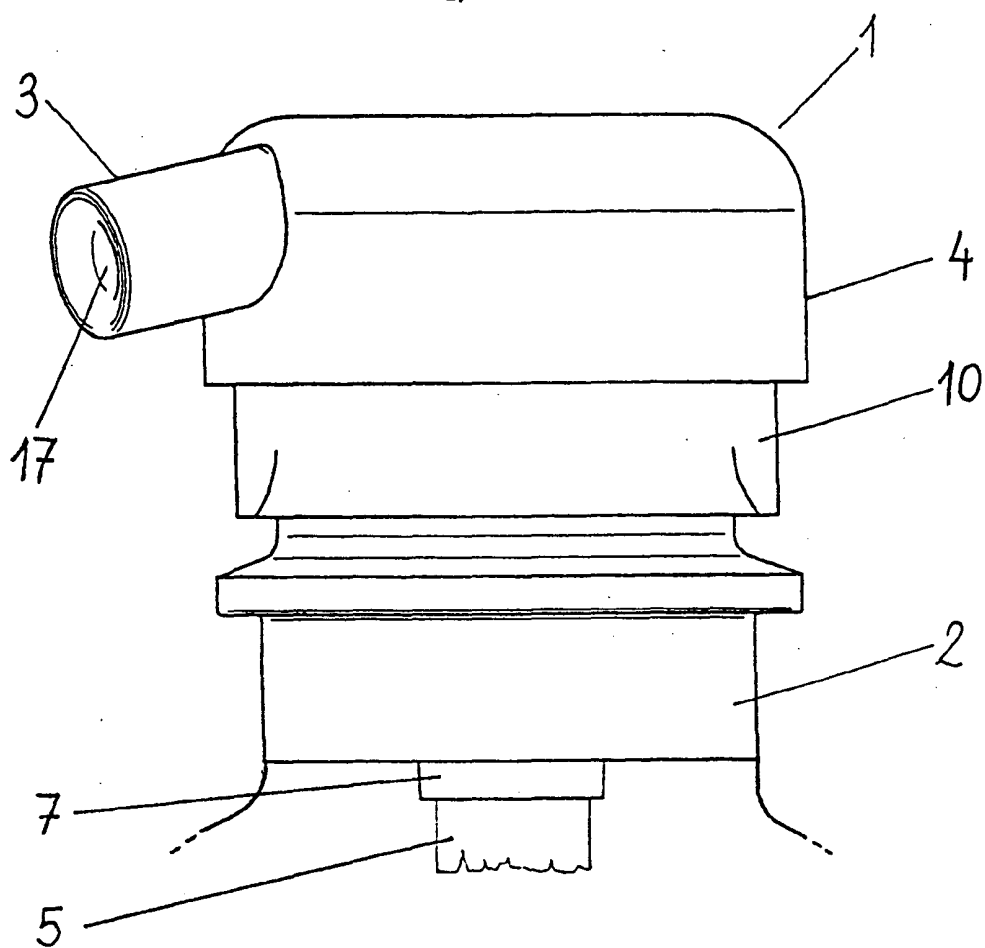


Fig. 1

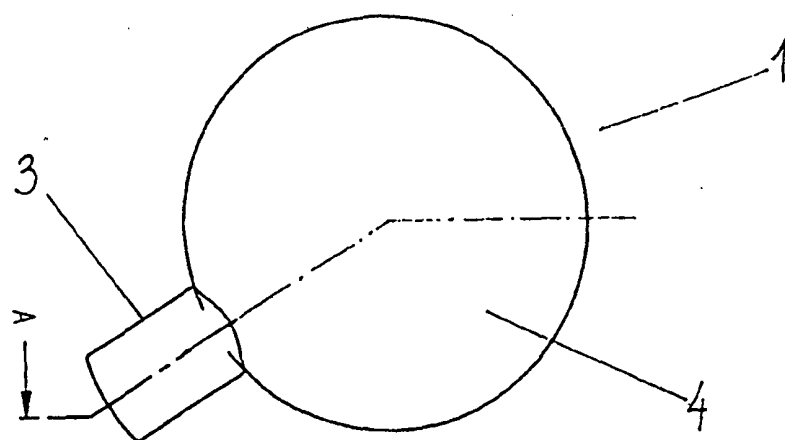


Fig. 2



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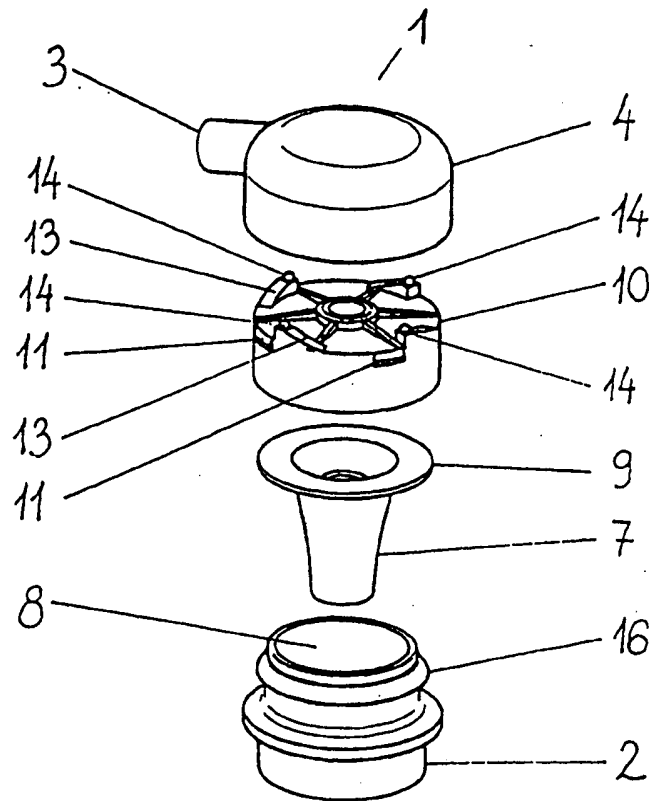


Fig. 3

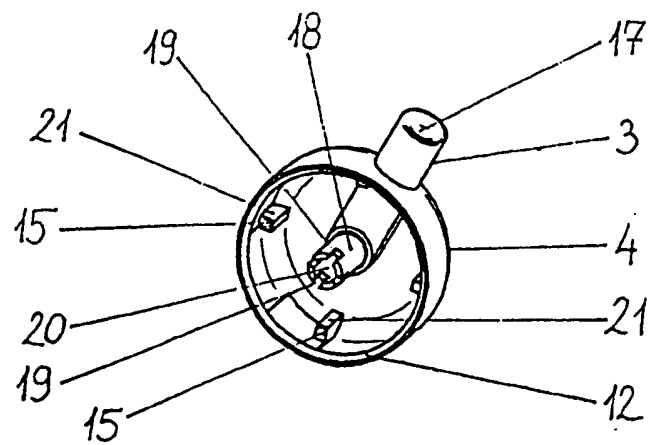


Fig. 4

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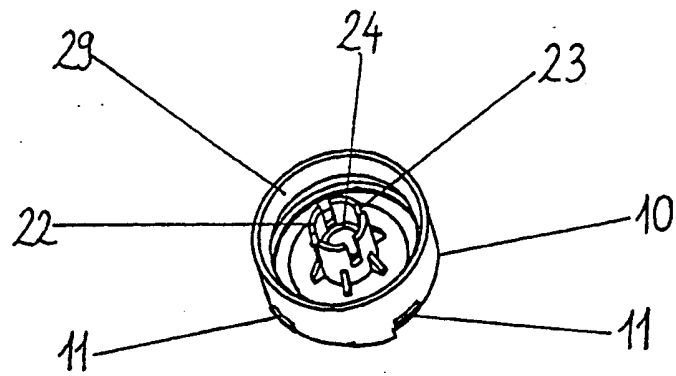


Fig. 5

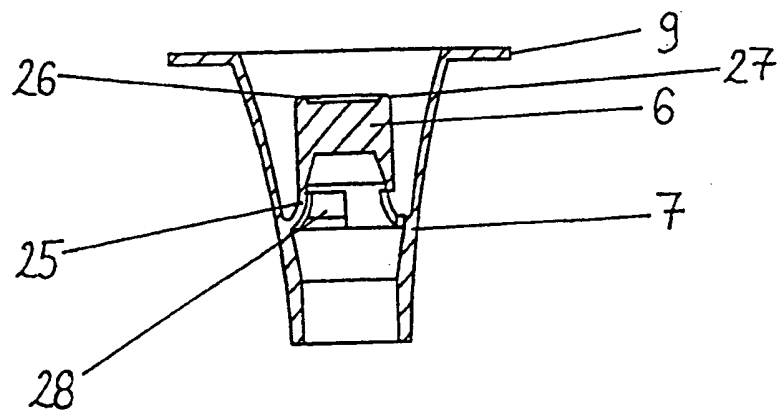


Fig. 6

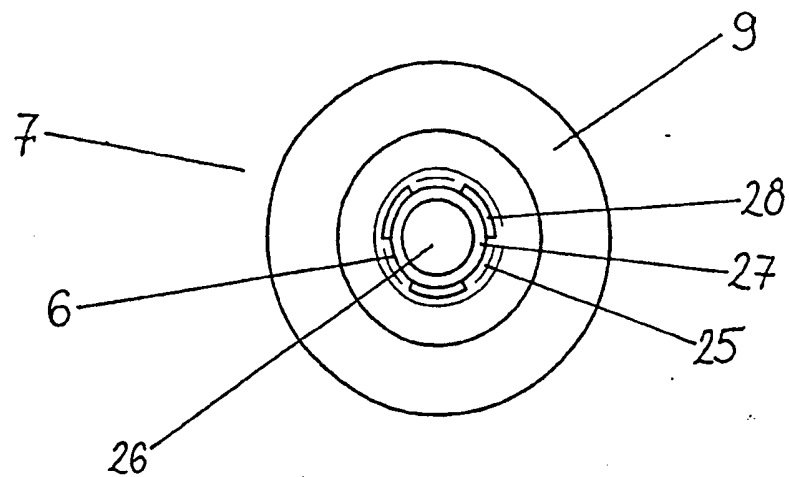


Fig. 7

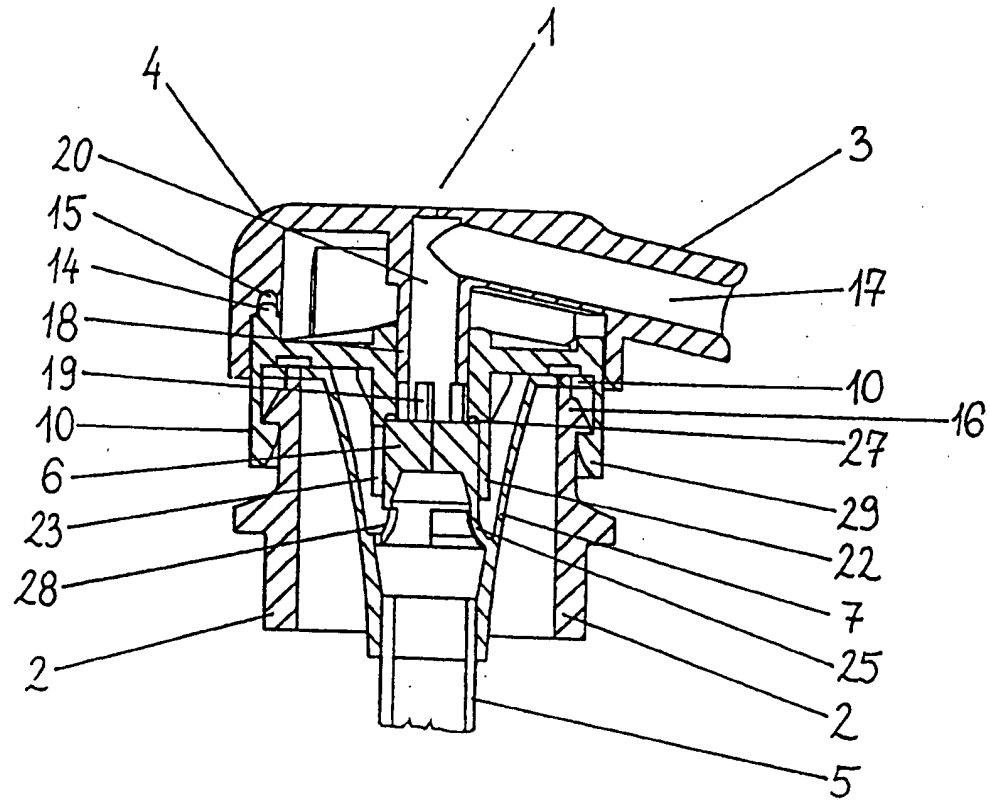


Fig. 8

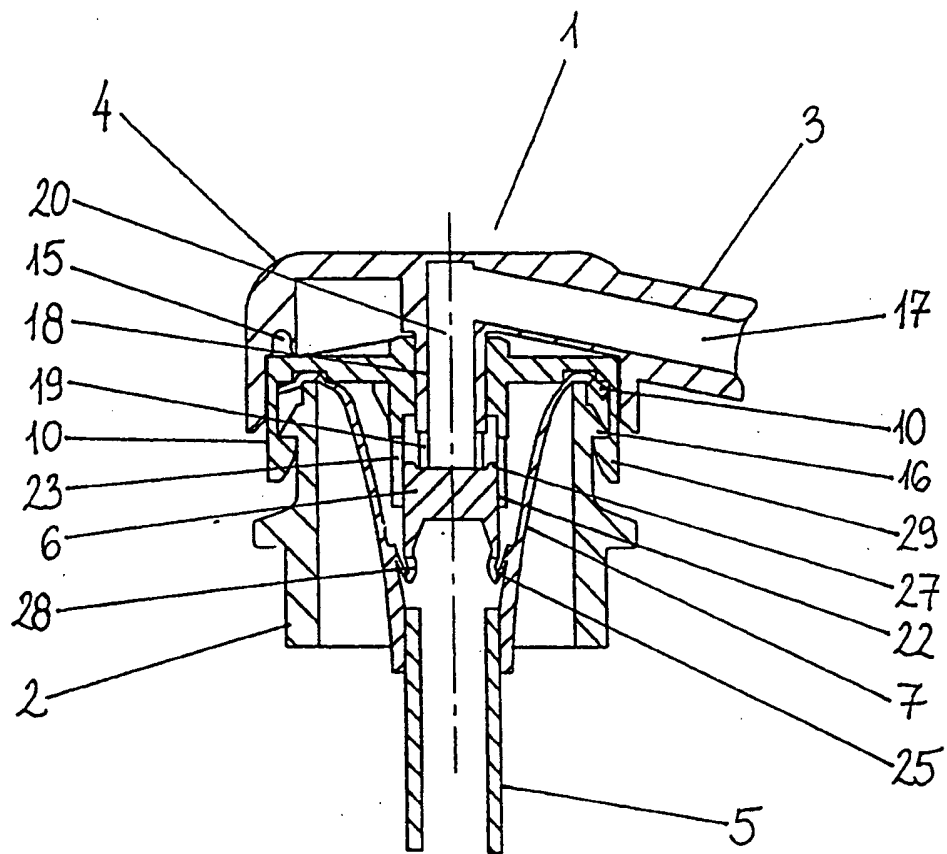


Fig. 9

# INTERNATIONAL SEARCH REPORT

Int. l. Application No.

PCT/HU 99/00014

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 B65D83/14 B67D1/04

According to International Patent Classification (IPC) or to both national classification and IPC

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Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B65D B67D

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 2 752 066 A (AYRES, JOHN F.) 26 June 1956 see column 3, line 53 - line 69; figure 8 ---	1
A	EP 0 704 251 A (VALOIS SA) 3 April 1996 ---	
A	FR 2 497 913 A (NORMOS NORBERT) 16 July 1982 ---	
A	US 3 549 060 A (SMYLIE, JERRY G.) 22 December 1970 -----	

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☒ Patent family members are listed in annex.

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7 June 1999

Date of mailing of the international search report

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Information on patent family members

International Application No

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
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